



FREQUENTLY ASKED QUESTIONS (FAQ) & ANSWERS

Dropping groundwater monitoring wells during Post-closure Care at permitted solid waste landfills

**Division of Land Protection and Revitalization
Office of Solid Waste
629 East Main Street
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Introduction

The Virginia Solid Waste Management Regulations (VSWMR) require landfill owner/operators monitor groundwater for a defined period of post-closure care (PCC) once a landfill has ceased accepting waste and has met its VSWMR closure requirements. During the PCC period, groundwater sampling may trigger the need for an owner/operator to implement corrective action to address landfill-derived aquifer impacts above the site's groundwater protection standards (GPS). If corrective action is ongoing at the time the VSWMR-defined PCC period would normally terminate, the PCC period will be extended until all groundwater remediation actions are complete.

During groundwater remediation efforts, owner/operators may recognize that some wells on site are devoid of landfill-derived impacts. Potential removal of these wells from the routine compliance network may afford some cost relief to the owner/operator or at the very least ensure that capital resources are being focused on the monitoring of those portions of the site that are actually impacted by a landfill release. This document addresses questions on the process to be followed by an owner/operator when requesting removal of qualifying wells from the facility's monitoring network. This document does not cover landfills which are currently active, those undergoing closure actions which are not yet complete, or those requesting removal of wells which would leave the facility with a network that no longer would meet the minimum component requirements of the VSWMR. Monitoring wells included in the facility's corrective action network are not subject to the allowances presented in this document.

If you need further assistance, please direct questions to your Regional Office groundwater contact or the solid waste Groundwater Program Coordinator, Mr. Geoff Christe at (804) 698-4283 or Geoff.Christe@deq.virginia.gov.

1] How do I tell which of the monitoring wells onsite is officially part of a facility's post-closure care groundwater network?

While the VSWMR, under 9 VAC 20-81-250.A.3, define the minimum number of monitoring wells needed during the life of a landfill's groundwater monitoring program, the facility's solid waste Permit (Modules X, XI and XIV) and Post-closure Care Plan will commonly define the monitoring wells within a facility's compliance network. Monitoring wells strictly related to any Corrective Action related sampling will be listed in Permit Module XIV.

Except in rare cases, most landfills in the Commonwealth will have a monitoring well network that contains more than the minimum VSWMR-defined number of wells.

2] What defines how long a well must remain in use on site?

The VSWMR define the length of the post-closure care (PCC) period and require groundwater be monitored until such time as PCC is terminated. The VSWMR, under 9 VAC 20-81-250.A.3.e also require that all wells installed for monitoring purposes function as designed during the life (including post-closure care period) of the monitoring program. The regulatory intent is to ensure monitoring actions continue throughout the entire PCC period.

3] I understand that site-wide PCC responsibilities do not terminate until groundwater remediation conducted under Corrective Action (9 VAC 20-81-260) is complete?

Yes. While the VSWMR define a minimum length of time for a PCC period, that length of time can be extended to cover the time required to remediate site groundwater to the applicable groundwater protection standards.

4] Although my site is in Corrective Action, there are only a couple of groundwater compliance wells which actually display landfill derived impacts. Isn't there a way I can stop sampling the non-impacted monitoring wells in order to reduce sampling costs during the extended PCC?

Yes. However, to be considered for removal from your network, the requested monitoring wells must satisfy certain critical performance criteria.

5] What criteria must be met in order to be considered for permanent removal from the facility's PCC network?

The wells must be located at a site which is in post-closure care as defined in the VSWMR and cannot be part of the Corrective Action network defined in Module XIV of the solid waste Permit.

The wells in question cannot include the facility upgradient well and removal of the requested well(s) still leave the Compliance network with at least three downgradient and one upgradient sampling points as required under 9 VAC 20-81-250.A.

Each of the wells requested must have been sampled for the required minimum length of the VSWMR-defined post-closure care period. For example, if a landfill is undergoing 10 years of semi-annual post-closure care sampling, each of the requested wells should have undergone at least 20 sampling events. If the well has undergone less than 20 sampling events, it will not be considered for network removal.

The requested well(s) has to display no exceedances over background during the last three years of sampling events which, for VOC constituents, would mean no quantifiable detections (i.e., results above LOQ).

6] Why does the Department apply a three year window for assessing groundwater quality in a compliance well proposed for network removal ?

The three year window is consistent with the requirement that an owner/operator meet groundwater protection standards for three consecutive years of sampling to prove remediation has been successful within the groundwater plume before terminating corrective action. The three year window also should be long enough to withstand any potential short term temporal effects of climatic events which may affect metals results.

7] Does a one-time background exceedance or quantified VOC detection within the three review window automatically remove the well from removal consideration?

*The Department reserves the right to review information such as: **a]** when the one-time event took place within the three year window, **b]** compare the concentration to those historically identified for the constituent in question in the well of concern, and **c]** perhaps ask the owner/operator to address the one-time event through use of a longer term trend analysis using the last five years of sampling results at the well in question.*

8] What about statistical outliers or temporal variations in my past data, especially with respect to past metals detections in the well of concern?

Owner/operators are referred to the very detailed discussions in Chapter 5 of EPA's 2009 Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance [EPA/530/R-09/007] for further information and guidance on screening their available groundwater sampling data sets for outliers, temporal variation, etc., which may not reflect true aquifer conditions. The Department will take such information under consideration when reviewing the request to drop the well from the network.

9] What format does a request to drop Compliance network wells need to be submitted in?

The request may be submitted in the form of a letter to the Director submitted to the applicable Regional Office as well as the Central Office in Richmond, Virginia. The request should be signed by a qualified groundwater professional and include all data

relevant to the screening criteria discussed above along with a site plan locating the well of concern.

10] When should such a request be submitted?

In order to allow the Department reasonable time to review the merits of the request, it should be submitted no less than 60-days prior to the next scheduled groundwater sampling event.

11] Do individual wells require individual requests?

No. Multiple wells can be included under a single request, as long as that request contains all the applicable supporting information described in this document.

12] If the request is approved, do I have to modify my existing Permit Modules X, XI, and XIV (if applicable)?

Yes, it is likely that a minor modification will be required to revise the monitoring wells currently listed within the facility's compliance network and the associated Groundwater Monitoring Plan (GMP). Your Regional Office will determine the timeframe allowed to complete these actions.

13] If the request is approved, do I have to modify my existing PCC plan?

Yes, it is likely an owner/operator will be required to revise the existing PCC plan if that Plan includes a table listing the monitoring wells to be sampled during the PCC period. Your Regional Office will determine the timeframe allowed to complete these actions.

14] If the request is approved, do I have to modify my PCC Financial Assurance demonstrations?

Yes, it is likely an owner/operator will be required to revise the existing FA to account for the reduction in the number of Groundwater Compliance points to be sampled for during the life of the PCC period. Your Regional Office, in consultation with the Department's Office of Financial Responsibility Programs & Data Management will determine the timeframe allowed to complete these actions.

15] If the request is approved, can I abandon the dropped monitoring wells onsite, or do they need to be maintained until site wide PCC actions are successfully completed?

Unless such specific approval is granted by the Department, the dropped monitoring wells should be maintained on site as groundwater piezometers for groundwater elevation and groundwater flow rate and direction calculations. Well abandonment should not take place until the site is fully released from PCC responsibilities.

16] If the request is rejected, can I resubmit in the future?

Yes.

If the Department does not concur with the motion to drop the requested well(s) from the network, the basis for the decision will be stated and the facility may resubmit the request in the future once additional information is available to address the Department's concerns.

17] Couldn't this same process be applied to remove all applicable wells, leaving a site with perhaps one upgradient well and one (landfill-impacted) downgradient well along with the related CAP wells?

Because the VSWMR define the minimum requirements a compliance well network has to meet, if an owner/operator wanted to delete wells such that the final network would not meet the VSWMR minimum criteria, then consideration of such a request would have to take place under the Variance option described under 9 VAC 20-81-760 including submittal of the application Fee and completion of the public notice actions prior to a final decision being made.

In such a case, the technical information described in this FAQ would still need to be submitted with the petition, as well as all the material required under section 760.

In cases such as these, the owner/operator should contact the Regional Office prior to submitting the Petition and Variance Fee to discuss site aspects and groundwater conditions which may make final approval difficult to achieve.